

Bi-Monthly Progress Report

Period: January 1 to February 28, 1973

A. Title of Investigation:

Evaluation and Comparison of ERTS Measurements of Major Crops and Soil Associations for Selected Sites in the Central United States (originally Evaluation and Comparison of the Utility of ERTS-A Measurements over Selected Sites in Europe, North America, and South America).

ERTS-A Proposal Number: SR #050

B. Principal Investigator: M. F. Baumgardner GSFC Number UN630

C. Computer compatible tapes from August and September of 1972 have not yet been received. These tapes are needed for the temporal overlay studies. Extensive ground observations were made for these ERTS passes. Digital data for these dates are of great importance to the project.

D. Identification and Mapping of Geologic and Soils Features

Digital data from portions of three ERTS frames; E 1078-16524, E 114-16532, and E 1132-16532 of Lynn County, Texas were temporally overlayed. Supervised classification was used to study agricultural features in the county. Training and test fields were selected utilizing ground information data collected by volunteer cooperators in the area. A high degree of accuracy was achieved in separating row crops from other agricultural and land use features. A study was performed on changes in water quality and surface area of Tahoka Lake and the many playas in Lynn County, Texas, using time sequential ERTS MSS data.

For the Lubbock Regional Test Site non-supervised classifications have been completed for Lubbock, Crosby, Garza and Lynn Counties of the agriculture and urban areas. Comparative research is being conducted on irrigated and non-irrigated agricultural areas in Lubbock and Lynn Counties. Investigative work is also underway in several large ranching areas to study forage quality and differentiation of native and cultivated forage species.

Preliminary analysis on the Huntington-Salomonie River Reservoir complex near Huntington, Indiana is in progress. The purpose is to delineate surface drainage patterns and to estimate bare soil acreage for prediction of probable siltation hazards for the reservoirs.

A design for future ERTS projects in observing differences in the soil order mollisol in the plains states has been completed. The design will be implemented in the spring of 1973 to study soil differences from north to south in the plains states areas.

- E. Surface features which were easily identified in the Lynn County, Texas study included row crops, unimproved rangelands, improved rangelands, bare soils, winter wheat, playas, river and streams, towns and cities, reservoirs, and gross geologic and soil features.

The study of water quality and surface area in Tahoka Lake using the overlay data produced four major types of classes: 1) classes which were not water on any of the three days, 2) classes which were water for all three days, 3) classes which were water on only two days, and 4) classes which were water on only one day. By analyzing the arrangement of points, changes in water surface area can be observed and deep and/or clear water can be distinguished from shallow and/or turbid water by comparing class means.

- F. Papers and Publications: None
- G. No operational changes are recommended.
- H. No changes in standing order form is requested.
- I. ERTS Image Descriptor Forms - See attachment.
- J. No Data Request Forms were submitted to GSFC/NDPF during this period.

ERTS IMAGE DESCRIPTOR FORM

(See Instructions on Back)

DATE March 1, 1973

PRINCIPAL INVESTIGATOR M. F. Baumgardner

GSFC UN630

ORGANIZATION _____

NDPF USE ONLY

D _____

N _____

ID _____

+ PLEASE Fill In

PRODUCT ID (INCLUDE BAND AND PRODUCT)	FREQUENTLY USED DESCRIPTORS*			DESCRIPTORS
	Agricult	Soils	Water	
1069-15585 MD	x			Urban
1044-16595 MD	x			
1086-15532 MD	x	x	x	
1078-16524 MD	x	x	x	
1114-16532 MD	x	x	x	
1132-16532 MD	x	x	x	Geologic Features
1002-16312 MD	x	x	x	
1017-16093 MD	x	x	x	
				Geologic, Urban

*FOR DESCRIPTORS WHICH WILL OCCUR FREQUENTLY, WRITE THE DESCRIPTOR TERMS IN THESE COLUMN HEADING SPACES NOW AND USE A CHECK (✓) MARK IN THE APPROPRIATE PRODUCT ID LINES. (FOR OTHER DESCRIPTORS, WRITE THE TERM UNDER THE DESCRIPTORS COLUMN).

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